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ABSTRACT

The Maldives experience of constructing community schools is examined to show how other small countries may overcome the special problems faced in designing and building schools. External assistance for design, and training of national personnel qualified neither as architects or engineers, was used to make up for the lack of a permanent unit for school design and construction, and a lack of knowledge of changing technologies. An historical perspective of primary education in the Maldives is presented, outlining the transition of the school from home-based, religious entities to the establishment of the Ministry of Education and finally to the government-run schools of today, whose policy is to expand educational facilities to all parts of the country by upgrading existing traditional schools and/or building new ones, and to assist them in their functioning. Community schools, once completed under the Ministry of Education, are used by the community for seminars, meetings, parties and film shows, and by teachers for training. Designs for community school buildings and furniture plans are included and the structure of the government with relation to school construction and scheme of work is outlined. Seven tables, 25 illustrations and 3 annexes are included. (JMM)

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INNOVATION IN PRIMARY SCHOOL CONSTRUCTION

Maldives Community Schools

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EDUCATIONAL BUILDING REPORT 12

Unesco Regional Office for Education in Asia and the Pacific
Bangkok Thailand

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INNOVATION IN PRIMARY SCHOOL CONSTRUCTION

Maldives Community Schools

by Mohamed Luthfi
Habeeba Zubair

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Small countries face special problems in school construction. The number of buildings to be constructed and maintained is usually too small to justify the creation of a permanent unit for school design and construction. Furthermore the long time lapse between construction projects means that there is no continuous accumulation of experience with changing technologies.

This report on the Maldives experience of constructing their community schools shows one way in which the problems have been overcome. It has involved the use of external assistance for design linked with the training of national personnel who were qualified neither as architects nor engineers.

Mr. Luthfi, has become, through his experience in this project, one of the "barefoot architects" of school buildings in Asia - a person who has learned on-the-job working side by side with a trained architect. Prior to taking on the task of constructing the community schools, he had been an agriculture advisor and therefore had previously visited all of the islands. This greatly facilitated his work in selecting building sites and also in mobilizing the community support. Ms. Habeeba Zubair, has helped by preparing the manuscript so that it will be clear and interesting even for non-professionals.

This project is also an example of effective international cooperation. The need for school buildings was originally identified by Unesco, Paris; UNICEF raised funds to pay for their construction; UNESCO, Bangkok prepared the plans and trained the staff; UNICEF covered the costs for materials and skilled labourers; the communities contributed their time and effort to carry the sand and coral to the sites and the Maldives government assured the construction of the buildings.

PREFACE

The Maldives National Commission for Unesco has provided substantial support to Unesco, Bangkok for the preparation of this report through selecting the authors, giving comments and providing up-to-date reference, materials and statistics.

There are several factors that make the Maldives experience worth study by larger countries. The spirit with which the villagers entered into building their community schools is exemplary. Perhaps even more important is the way in which this same spirit has been carried on into maintaining the school buildings and making them into beautiful places through generous, and exceptionally neat, landscaping.

It was upon this community desire to do things as perfectly as possible that it was possible to introduce bolted trusses into the atolls. Helped by trained carpenters from Sri Lanka, the villages workmen learned a new technology.

While these community schools are modern buildings, their design has been carefully based on traditional types of spaces and on the use of indigenous building materials. The steeply pitched roofs and coral masonry walls in particular are taken from local buildings. Their layout is according to a disciplined composition of aligned buildings and carefully proportioned internal spaces. As a result, the schools fit well with the islanders' houses and the rectangular grid pattern of the streets found in virtually every maldivian village.

This EB report takes its place along with others in the series from Afghanistan, India, Indonesia and Sri Lanka, which concentrate on innovations in primary school building.

CHAPTER I
PRIMARY EDUCATION IN THE MALDIVES: THE HISTORICAL PERSPECTIVE

Before 1924, education in the Maldives was a process of direct, face-to-face learning. Tutorials were provided on religious teachings by learned people returned from studies abroad or by travellers passing through the country. Skills in crafts and other work were passed down in the family.

In 1924, the first formal schools were opened in the four wards of the capital, Male'. These were administered by the ward Administration Committee. The edhuruge, as this type of school was called, served as a Koranic school, since the school taught the Koran and religious teachings. Similar schools were established on two islands, one in the north and one in the south, by two learned men who had studied religion abroad. These schools were more often than not based either in affluent homes or on the verandah of a government centre.

The decade also saw the beginning of traditional pre-schools in the country: the kiyavaage. These schools were established in neighbourhood homes and taught children ages 3-7 to read Dhivehi and Arabic. Older children were also taught prayers. Again these schools would be mostly housed in the teacher's, or edhuru dhaitha's houses. The teachers mostly were women. These schools also acted as traditional child-care centres.

The Maldives came under constitutional administration for the first time in the year 1983. Under an act of the first established Ministry of Education, the first school for both sexes opened in Male'. This was a more advanced school compared to the edhuruge and taught Arabic, religious knowledge, Urdu, English, arithmetic and general knowledge. Education in this school was offered up to middle-school level. This school later developed into two other schools, run entirely by the government.

Establishment of this school was a fairly easy task for the Government. A more complex task was how to make education accessible to the half of the population that is spread over a number of islands. This problem though eased in many ways by modern transport and communication facilities, still exists and has a distinct bearing on the development of education and construction of schools on the islands even today.

It is necessary to be aware of the unique geography of the country and its administration to be able to understand the complexity of the problems faced in the development of education on the islands.

The Republic of Maldives consists of more than 1,700 islands spread over a total area of 34,750 square miles with a total land area of only 115 square miles. Though many of the islands have economic activities such as coconut plantations, poultry farms or tourist resorts, only about 200 are inhabited on a regular basis. The country is made up of 26 natural atolls, which enclose a string of islands (Figure 1). These atolls, for administrative purposes, have been grouped into 19 atolls. Each atoll is a separate administrative unit. In the development of education in the country, the organization of government plays a major part (Figure 2).

Each atoll is headed by an appointed atoll chief. Each island has a headman (bodu katheeb) and a junior headman (kuda katheeb). There is only one headman on each island, but the number of kuda katheeb varies with

REPUBLIC OF MALDIVES

Figure 1. Map of the Republic of Maldives

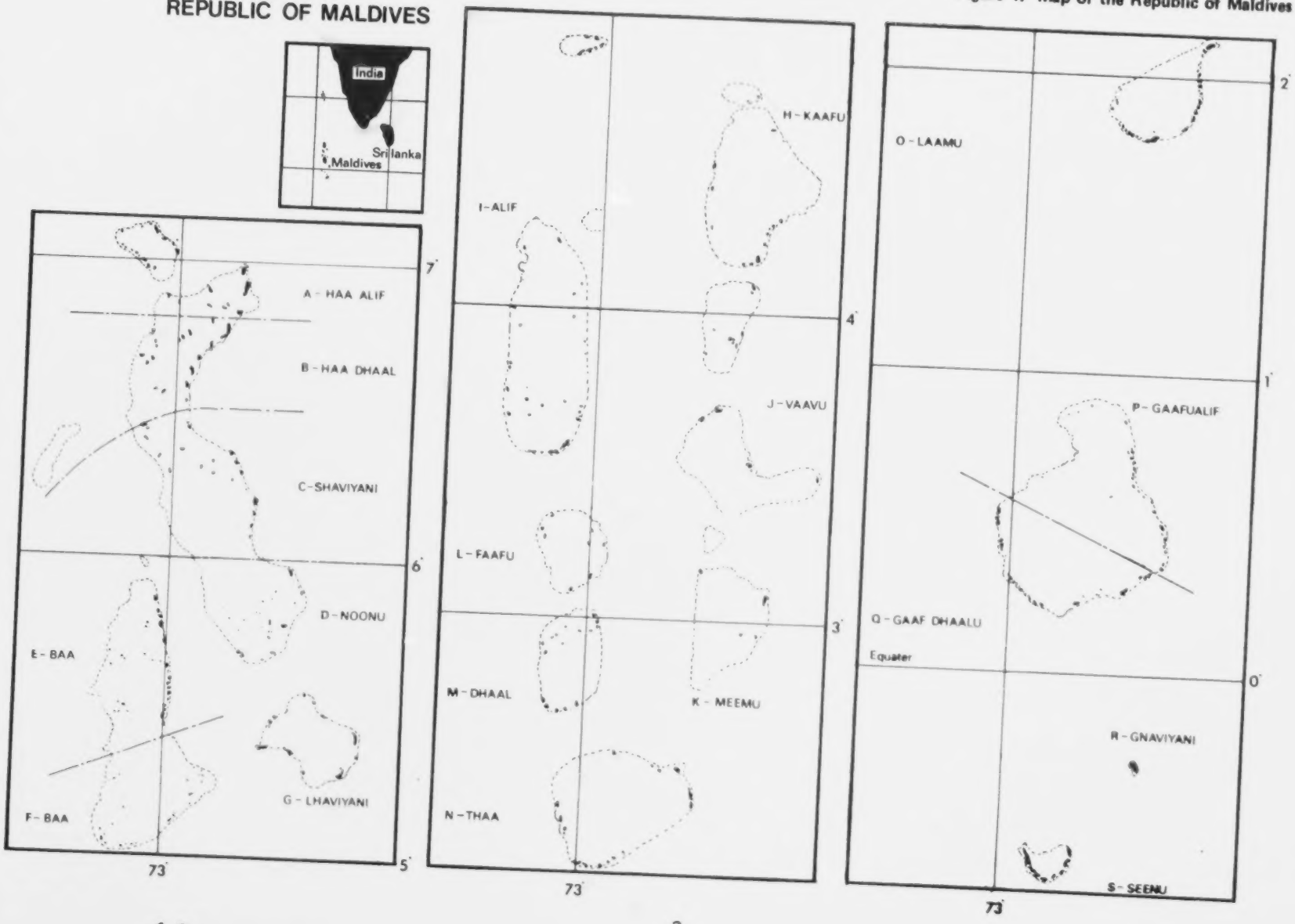
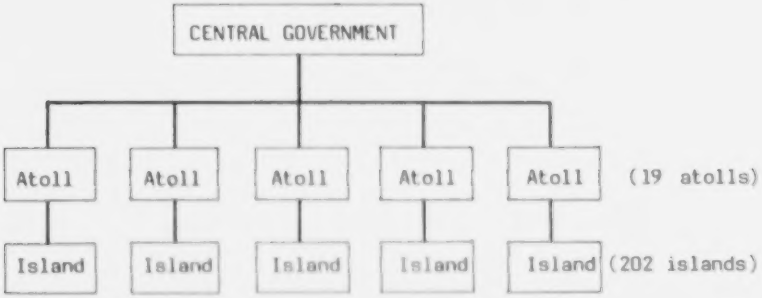


Figure 2. The organization of Government by atolls and islands



size of population and range of work on the island. The islands are divided into wards, although these wards are recognized as official administrative units only in a few well-populated, large islands. Extremely influential people in the wards take the leadership.

Even though the atoll chief is the head of the atoll, because of the isolation of the islands and difficulties of transport, the atoll chief relies heavily on the katheebs for their smooth administration. And more often, the katheebs themselves are in extremely political positions where the goodwill and support of influential members of the island community are necessary for successful implementation of programmes. This is especially the case with the Maldives because of the small community on each island. Table 1 shows the list of the atolls and respective populations of the inhabited islands.

In 1946, less than per cent of the population received formal schooling. In 1947 in an ambitious programme to provide education and facilitate conditions toward compulsory education, a school was established on every inhabited island in the country. The government received immense support in this programme from the island people. Committees were formed at island level to

Table 1. Population of islands by atolls

DISTRIBUTION OF THE POPULATION, 1977 AND 1985

Name of Atoll	No. of Islands in Atoll	Total 1977	Male 1977	Female 1977	Total 1985
Haa Alif	16	8,601	4,416	4,185	9,891
Haa Dhaal	17	9,923	5,133	4,790	10,848
Shaviyani	15	6,363	3,293	3,070	7,529
Noonu	14	6,282	3,306	2,976	6,874
Raa	16	7,904	4,076	3,828	9,516
Baa	13	5,758	3,080	2,678	6,945
Lhaviyani	4	5,655	2,977	2,678	6,402
Kaafu	9	4,153	2,258	1,895	8,574
Alif	18	6,219	3,365	2,854	7,695
Vaavu	5	1,078	595	483	1,423
Meemu	9	3,095	1,610	1,485	3,493
Faafu	8	1,986	1,070	916	2,148
Dhaal	8	2,999	1,538	1,461	3,576
Thaal	13	6,214	3,174	3,040	6,942
Laamu	12	6,090	3,232	2,858	7,158
Gaaf Alif	10	4,977	2,572	2,405	6,081
Gaaf Dhaal	10	7,717	3,805	3,912	8,870
Gnaviyani	1	4,202	2,128	2,074	6,189
Seenu	6	14,094	6,961	7,133	14,965
Sub-total	204	113,310	58,589	54,721	135,119
Male'		29,522	16,635	12,887	46,334
TOTAL		142,832	75,224	67,608	181,453

organize, construct and assist in the functioning of these schools. These schools were of two types: the makthab and the madhrasaa. The makthab more or less took over the functions of the traditional edhuruge or Koranic school while also extending its curriculum to literacy skills and basic arithmetic. The madhrasaa has a wider curriculum, enrols more pupils and employs more teachers.

3

Each island school was run by the island administration, with both financial and material support from the community. A most unique system of support was the daily division and allotment of the fish catch put aside by island fishermen for the school. People from Male' were sent to the atolls to motivate and assist in the programme.

The Atoll Administration started its own project. Much of the Atoll Administration was weakened by the lack of educated people who could handle responsible jobs both at the office and in other leadership posts. The Atoll Administration established an atoll school in each of the atolls, where outstanding students from makthabs and madhrasaas were trained for leadership and administration. Frequently the most promising were brought to Male' for further training, enrolled in the main government school in Male' and given a six month apprenticeship in government offices, after which they went back to their respective islands. Students brought to the atoll school were supported by the island budget and looked after in well-to-do homes.

Although the level of education was very basic, the people were keen and enrolment was high. This was a difficult period for the country. After centuries of seclusion and isolation, the people in the atolls were being exposed to development at an extremely fast pace. With the rush to learn, to do, and to go to school, little attention was given to the physical conditions or layout of the schools. The economy of the islands and lack of pedagogical expertise did not allow for well planned roomy school buildings.

Many of the buildings were completed by the community, with some financial assistance from the island budget. The financial constraints of some of the islands were such that very little could be provided for speedy construction of schools. Although some schools were built of lime and coral and did have corrugated steel roofing (Type C), most were very small one room schools with

Figure 3.

Type A: A makthab – thatched roof and coral walls

thatched roofs (Type A). Often classes would be conducted on the spacious verandahs of island offices, guest houses (Type B) or well-to-do homes.

A more uniform type of school was developed during the late 1940s. It consisted mainly of one large hall, with several pillars distributed around it. These pillars usually determined the size of a single class. Elongated desks and benches were the furniture and very often the schools operated in shifts. These schools also acted as community or island centres for community activities like meetings or parties, as usually buildings of a similar size and spaciousness were not available.

With the change of government in the early 1950s, government interest in the educational movement in the atolls waned, and more and more attention was given to

Figure 4.

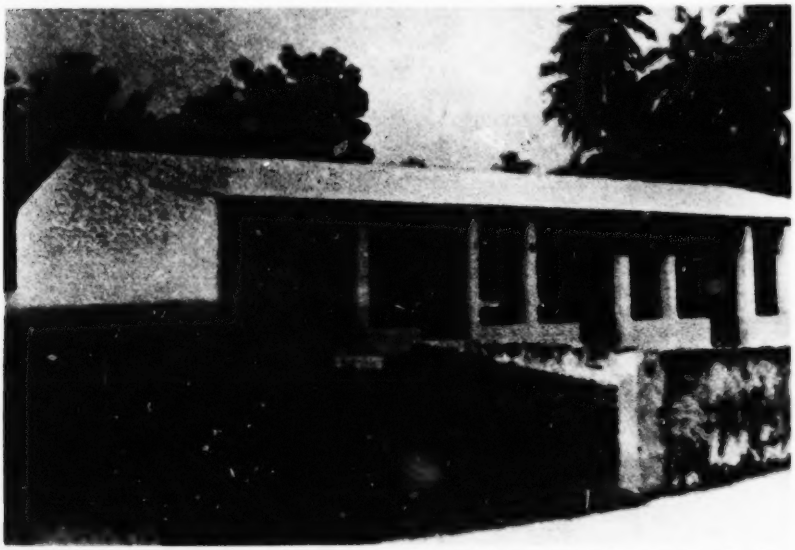
Type B: A primary school building that is part of the main administrative building of the island

the two government schools in Male'. In 1960, a dual system of education was introduced into the country by changing the medium of instruction in the Male' government schools to English and organizing the curriculum according to an imported London General Certificate of Education. A government nursery was also opened in 1961 and teachers were recruited from Sri Lanka.

Prior to the change of government, most of the government educational budget was allocated to the construction, upgrading, and improvement of these Male' schools, while the education system in the atolls started disintegrating. The exodus of educated people to Male' in search of a "modern" education began, and fewer and fewer qualified people remained to keep the atoll system together. Most of the makthabs and madhrasaas, although functioning, hardly provided even a basic primary

Figure 5.

Type C: A typical island school - a more recent model with classrooms, school office and play area



education. Although the islands still retained some of the makthabs and madhrasaas, most lacked the support of the island administration, and private people started taking over the education system. With barely enough funds, except in some exceptionally well off islands the islanders could not really contribute to the physical upgrading of the schools.

Table 2. Enrolment - schools and teachers in makthabs and madhrasaas by atolls and in Male', 1981

Name of Atoll	Makthabs					Madhrasaas					Total		
	Schools	Enrolment	Teachers			Schools	Enrolment	Teachers			Schools	Enrolment	Teachers
			Permanent	Temp.	Total			Permanent	Temp.	Total			
Haa Alif	14	1,246	37	25	62	5	1,068	18	20	38	19	2,314	100
Haa Dhaal	13	1,321	12	25	37	5	743	11	2	13	18	2,064	50
Shaviyani	9	928	6	27	33	6	1,028	12	16	28	15	1,956	61
Noonu	10	805	10	26	36	5	985	13	22	35	15	1,790	71
Raa	14	1,143	21	22	43	6	993	12	12	24	20	2,136	67
Baa	3	269	8	4	12	5	1,115	21	17	38	8	1,384	50
Lhaviyani	4	530	8	12	20	2	450	5	13	18	6	980	38
Kaafu	7	618	16	3	19	1	184	3	0	3	8	802	22
Alif	12	1,060	30	9	39	3	386	8	1	9	15	1,446	48
Vaavu	4	232	5	13	18	1	54	1	4	5	5	286	23
Meemu	5	583	3	19	22	0	0	0	0	0	5	583	22
Faafu	0	0	0	0	0	5	460	2	17	19	5	460	19
Dhaal	5	400	1	21	22	3	273	6	17	23	8	673	45
Thaal	11	1,377	14	17	31	2	445	3	4	7	13	1,822	38
Laamu	11	855	9	18	27	7	526	3	9	12	18	1,381	39
Gaaf Alif	6	296	4	15	19	3	561	7	1	8	9	857	27
Gaaf Dhaal	11	770	21	18	39	7	913	28	13	41	18	1,683	80
Gnaviyani	15	900	22	7	29	1	118	0	0	0	16	1,018	29
Seenu	22	1,418	48	15	63	17	2,824	63	47	110	39	4,242	173
Sub-total	176	14,751	275	296	571	84	13,126	216	215	431	260	27,877	1,002
Male'	-	-	-	-	-	-	-	-	-	-	7	3,899	-
TOTAL	-	-	-	-	-	-	-	-	-	-	267	31,776	-

Source: Ministry of Education

CHAPTER II
DEVELOPMENT OF PRIMARY EDUCATION, 1978 - 1983

In 1978, government interest and finance then resting in Male' shifted to the atolls, with government policy directed toward atoll development. The current long-term plan is to narrow the large gap in education between Male' and the rest of the country. Discrepancies in both systems have to be eliminated and provisions made for the improvement of the quality of primary education. Until 1978, education in the atolls was conducted mostly by the administrative staff of island offices, ghazees (court judges), and other scholars mainly on a part-time basis. Enrolment age and length of class periods were irregular, and so was the teaching input. Textbooks were almost never used at these makthabs and various syllabuses were applied. Indeed in some makthabs there was no syllabus at all.

Under government policy, the Government decided to expand educational facilities to all parts of the country.

To initiate this plan, the Government has taken two lines of action.

1. To upgrade existing traditional schools and assist them in their functioning with trained teachers, textbooks and other necessities.

2. If the physical structure of the school did not permit effective renovation or in the case of a severe lack of physical infrastructure, model primary schools would be designed and built. These would be provided with trained teachers, textbooks and other facilities and would be responsible for giving a complete primary and vocational education to the island children.

In order to meet the urgent education needs of the atoll population, these lines of action were deemed absolutely necessary. In terms of recurrent expenditures and other issues it does not seem feasible to make education completely a government undertaking. Although the Government has a duty to facilitate universal primary education in the country, it takes into consideration the unique geopolitical structure of the country and recognizes the dedicated contribution of the community and private sector in the upholding of education on the islands. Government policy is directed, therefore, to combining both efforts in the further development of education.

Upgrading and building schools remains a long-term strategy to a certain extent. Action was needed as early as 1979 to encourage, motivate and put hope into a dispirited system. The Government, in order to have a direct involvement, converted 19 primary schools into government sponsored primary schools. The Government also pledged financial support for schools that have continued to function for more than ten years. This assistance was in proportion to the student population of the institution. The Government also started giving assistance to many island schools by appointing teachers who are paid by the government.

An ambitious project started in late 1977 planned for the development of education in terms of curriculum development, teacher training, non-formal education through the radio and other media, and construction of model primary schools or community schools. This project was co-financed by UNICEF and UNDP while Unesco offered technical expertise. Under this project the first

community school opened in 1978. The project called for the construction of 19 such community schools. The intention was to upgrade existing primary schools and to establish a new prototype public education system similar to the one operating in Male'. It is now projected that by 1995, universal and high quality primary education up to grade V will be offered to children aged 6-10 plus.

More recently school facilities have also been offered by the Japanese Government. Thirteen have already been constructed and six more are planned. These schools, however, remain basic primary schools and are in fact providing new buildings for the Atoll Primary Schools, which are now sponsored by the Government.

Community schools, however, have a multi-faceted function. They are designed so that they offer accommodation for both primary and adult education, as well as providing the community with the infrastructure for community functions. In adult education both formal basic education as well as vocational training are offered at the community school. Children over the age-group of primary schooling are taught in the afternoons and evenings. The community school was originally intended to serve all the islands in a given atoll. In practice, however, the schools provide education only to the population of the islands on which the schools are based. However, with the emphasis on upgrading of physical conditions of island schools, in the coming five to ten years the community schools are envisaged to develop more and more into community centre for various development activities of the atoll. The Government intends to have the following additional and alternative uses for which boarding arrangements may be needed in the future.

1. An educational centre looking after the overall educational aspects of the atolls.

2. A centre for short atoll-level in-service training courses for atoll school teachers.

3. A centre for rural youth vocational training.

4. A centre for health education and all other community activities.

5. A centre for continuation of studies up to Junior School Certificate. Children of 10-13 years would be able to travel to and stay on the island for studies at grades VI and VII.

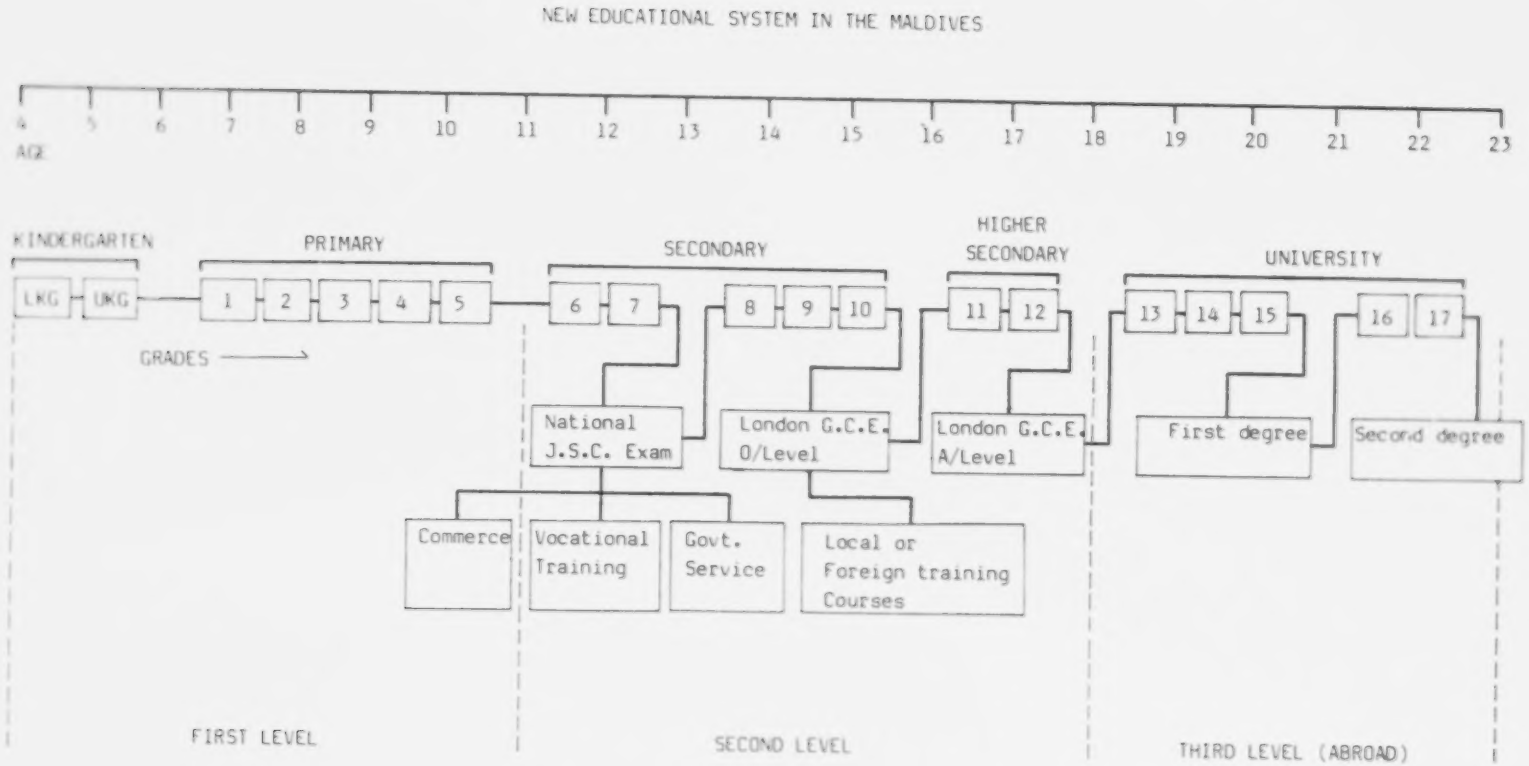
In retrospect, therefore, the community school would offer some of the services that the atoll schools in the 1940s offered to the outstanding students of the atoll. Development in the country is proceeding at a rapid pace. With emerging concepts and better insights into modern educational practices, it is hoped that functions of the infrastructure being set up in the atolls will change along with the changing needs of society. Although named as community schools when they were first opened in 1978, they are now being called more appropriately Atoll Education Centres (AEC), in reflection of the new functions.

Out of the 19 community schools, 17 were functioning in 1985. UNICEF had to cut down the initial 19 schools to 16 in order to meet the project budget set out in 1976. However, this loss has been covered by the Maldivian Government. One government-funded school has already been constructed and two more were expected to open in January 1986.

Table 3. Comparison of three types of government schools and the scale of islands containing them

	more than 200 pupils	more than 900 pupils
Government-sponsored atoll primary schools	12	7
Government-sponsored community schools	17	11
Japanese-aided schools	16	7

Figure 6. The educational system in the Maldives



Abbreviations: J.S.C. = Junior School Certificate
G.C.E. = Graduate Certificate Examination

Table 4. Progress of school enrolment

Locality and school type	Number of students enrolled					
	1978	1979	1980	1981	1982	1983
Male'						
Government	2,631	3,402	3,812	4,228	4,978	5,892
Private		4,428	6,127	3,261	3,994	5,341
Total		7,830	9,939	7,489	8,972	11,233
Atolls						
Government	59	3,645	4,413	4,807	6,719	7,916
Private		21,589	33,289	24,719	22,395	23,449
Total		25,234	37,702	29,526	29,114	31,365
Republic						
Government	2,690	7,047	8,225	9,035	11,697	13,808
Private	12,342	26,017	39,416	27,980	26,389	28,790
Total	15,032	33,064	47,641 *	37,015	38,086	42,598

* Includes participants of classes organized outside the formal schooling system, who were omitted in other years.

Source: Ministry of Education

Table 5. Estimated enrolment ratio for primary education by atoll, 1980

Name of Atoll	Estimated school age population 5-19 years old	Primary enrolment	Enrolment ratio in % (°)
Haa Alif	3,610	2,326	64
Haa Dhaal	3,991	2,064	52
Shaviyani	2,570	1,956	76
Noonu	2,541	1,864	73
Raa	3,276	2,136	65
Baa	2,485	1,331	54
Lhaviyani	2,450	1,059	43
Kaafu	1,754	802	46
Alif	2,436	1,446	59
Vaavu	413	286	69
Meemu	1,255	583	46
Faafu	792	460	58
Dhaal	1,263	672	53
Thaal	2,718	1,829	67
Laamu	2,530	1,381	55
Gaaf Alif	1,883	857	45
Gaaf Dhaal	2,990	1,679	56
Gnaviyani	1,770	726	41
Seenu	6,599	4,201	64
TOTAL	47,326	27,658	58
Male'	3,800 (¹)	2,907 (²)	76

(°) Since the age range of students enrolled in the primary school is very wide, the 15 year age-group of 5-19 is taken as the school-age population in which most of the students can be classified.

(¹) Population of ages 6-10 which corresponds to the actual primary school age-group in Male'.

(²) Enrolment in grades I to V of the public and private schools in Male'.

CHAPTER III
THE COMMUNITY SCHOOL BUILDING

In order to provide uniformity of the new schools to be opened, the government decided to have one design of community school. All construction was to be conducted as much as possible with locally available materials. (The government plan has since been modified so that building size is directly related to projected enrolment.)

Table 6. Building materials used for construction

BUILDING ELEMENT	MATERIALS
Foundation	Coral stone, lime with cement
Floor	Concrete
Walls	Coral stone, lime, sea sand; plastered with lime and sea sand
Roof covering	Corrogated gavalvanized steel sheet

Each school consists of:

1. One hall, 2352 square feet or 2940 square feet. This hall is to be separated into four or five classrooms by room dividers or cupboards. Each class should provide space for 40 students, 588 square feet per class. This hall will contain grades I-IV.

2. One office room, 196 square feet.

3. Two storerooms, 147 square feet and 98 square feet.

4. One house for the headmaster, 661 square feet.
   a) one sitting room, 147 square feet.
   b) one dining room, 105 square feet.
   c) two bedrooms (i), 147 square feet;
      (ii), 105 square feet.
   d) outside kitchen, 60 square feet.
   e) a well,
   f) a toilet, 20 square feet.

5. Central buildings in two blocks
   a) a classroom; 588 square feet.
   b) a room for community education activities, 588 square feet.

6. Toilet building, 149 square feet.

7. Water tanks of 400 gallons

School site area, 50,000 square feet to 75,000 square feet.

Area for sports, 100 x 150 feet; 15,000 square feet.

All buildings are constructed with the long axis running east to west.

The basic design of the school was contributed by UNICEF and Unesco, while a building manual was prepared jointly by UNICEF and the Educational Project Office in March 1978 in order to facilitate and guide the construction. Since the local workmen involved in the construction were not familiar with some of the techniques to be used, this manual gave detailed descriptions and measurements with relation to the following subjects:

1. Selection of site
2. Use of site
3. Other considerations in selection of school site
4. Wind direction in selection of site
5. Importance of wind direction
6. Sun shading
7. Preparation of site
8. Levelling of school site
9. Meals for volunteers
10. Clearing of site
11. Final inspection of site
12. Marking the place where the school buildings will be constructed
13. Materials needed for demarcation of foundations
14. Demarcating foundations with coir* rope
15. Digging foundations
16. Making the base of the foundation
17. Construction of foundations
18. Cement mix for foundations
19. Mixing cement for foundations
20. Commencement of construction of foundations
21. Filling the foundations
22. Construction of walls and pillars
23. Mortar for construction of pillars
24. Conveying the mixture to the masons
25. Construction of pillars and walls
26. Installation of doors and windows
27. Alternative procedures if doors and windows are not available at the time of construction
28. Reasons for using concrete tops of pillars
29. Construction of concrete pillar-heads
30. Quantities required for concrete mix
31. Preparing concrete
32. What is a truss?
33. Construction of trusses
34. Number of trusses required
35. Materials for construction of roof trusses
36. Wood
37. Nuts and bolts
38. Importance of fixing girders, trusses and purlins
39. Fixing girders
40. Fixing trusses
41. Steps in fixing roof trusses
42. Fixing of purlins
43. Material needed for cantilever construction
44. Fixing of fascia boards (valance boards)
45. Fixing roof sheeting
46. Fixing corrugated galvanized steel sheets
47. Fixing top ridges
48. Fixing gutters
49. Situating of toilets
50. Construction of toilet building foundation

The manual is well illustrated with sketches and gives a detailed description of activities from levelling the ground to concreting the floors.

Figures 7 through 11 show the architectural plans of the schools. While each community school has its own site plan adapted to the specific conditions of the locality, the building plans have been used for all schools. Figure 12 is a perspective view of a completed school.

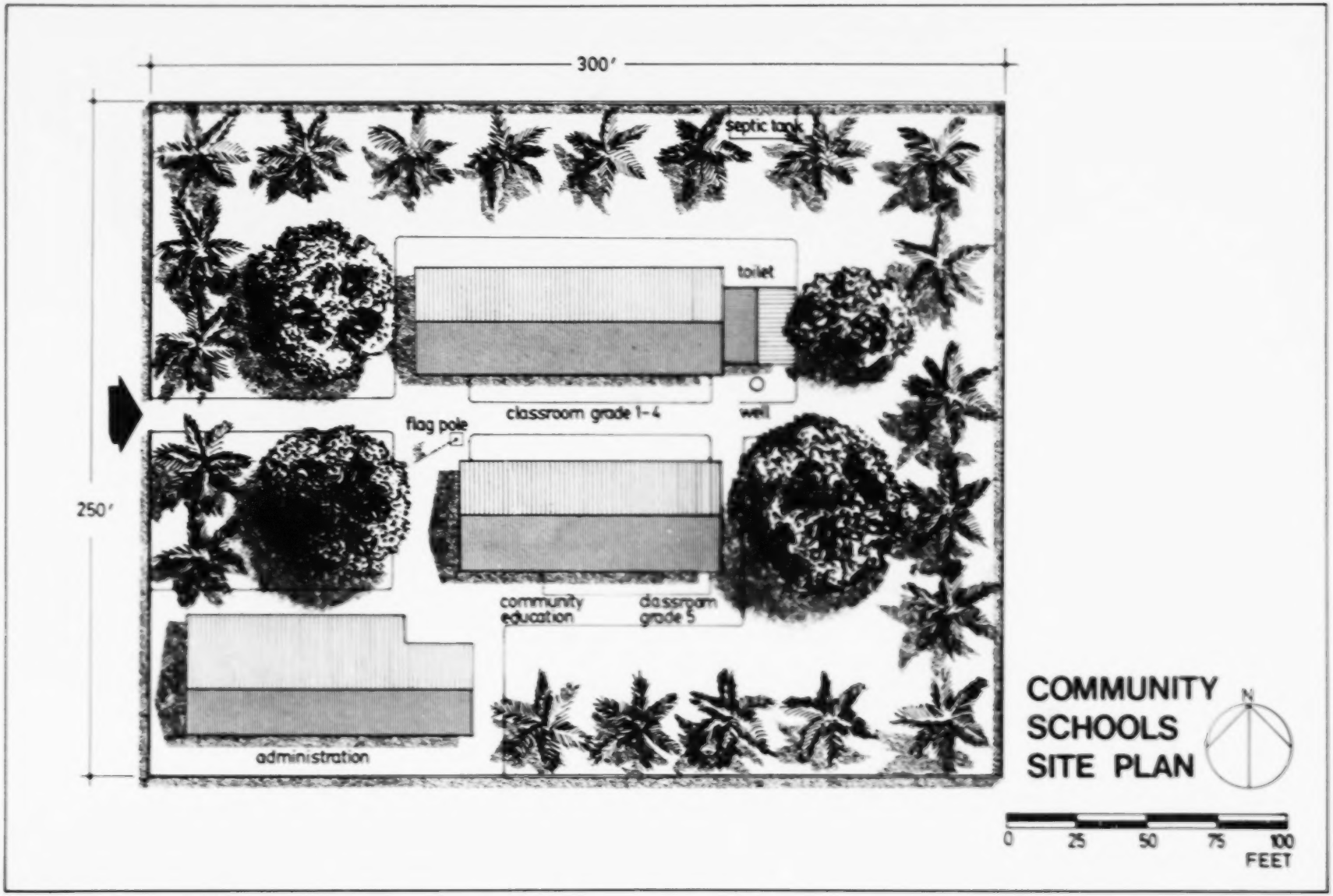


Figure 7. Community schools - site plan

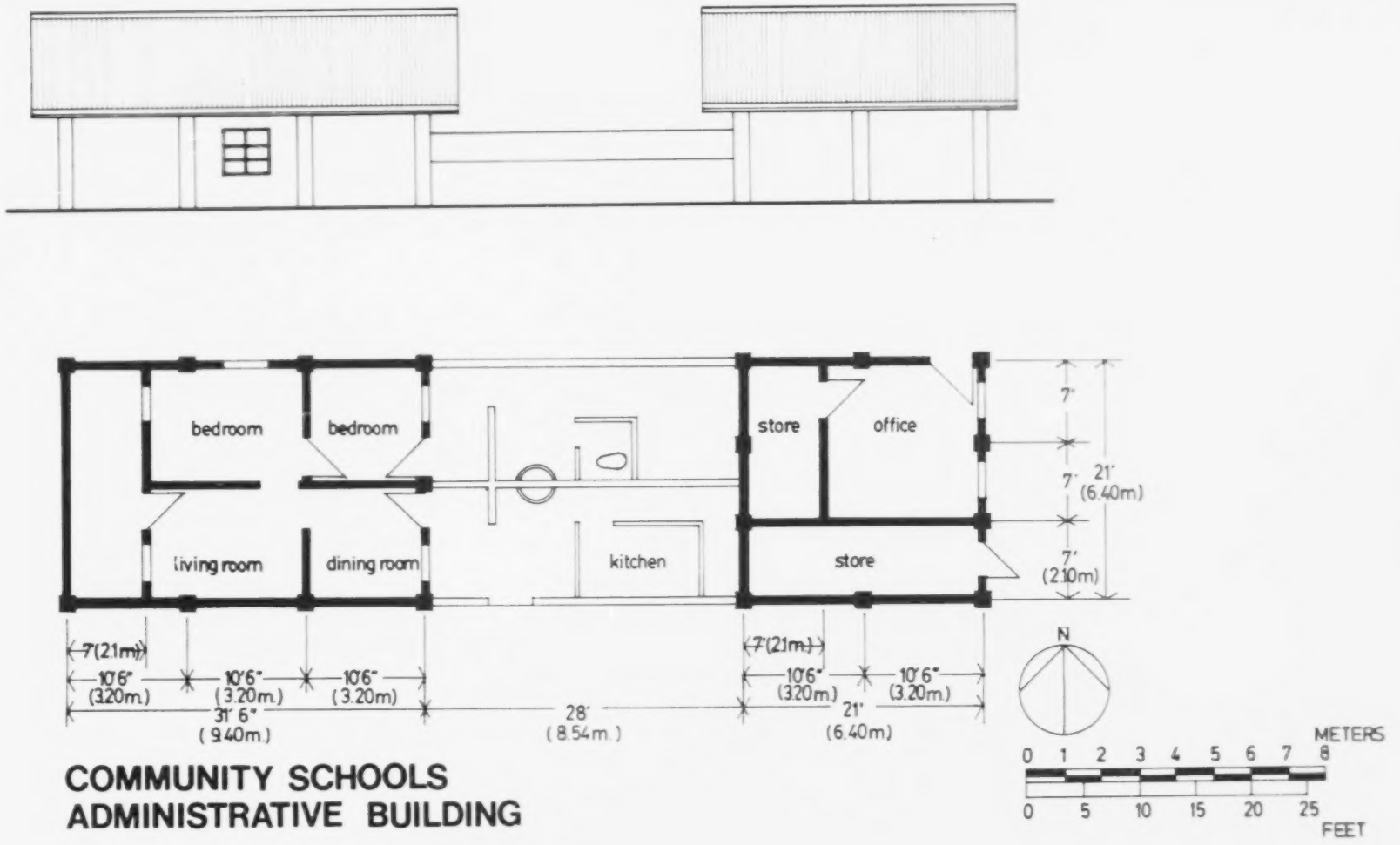
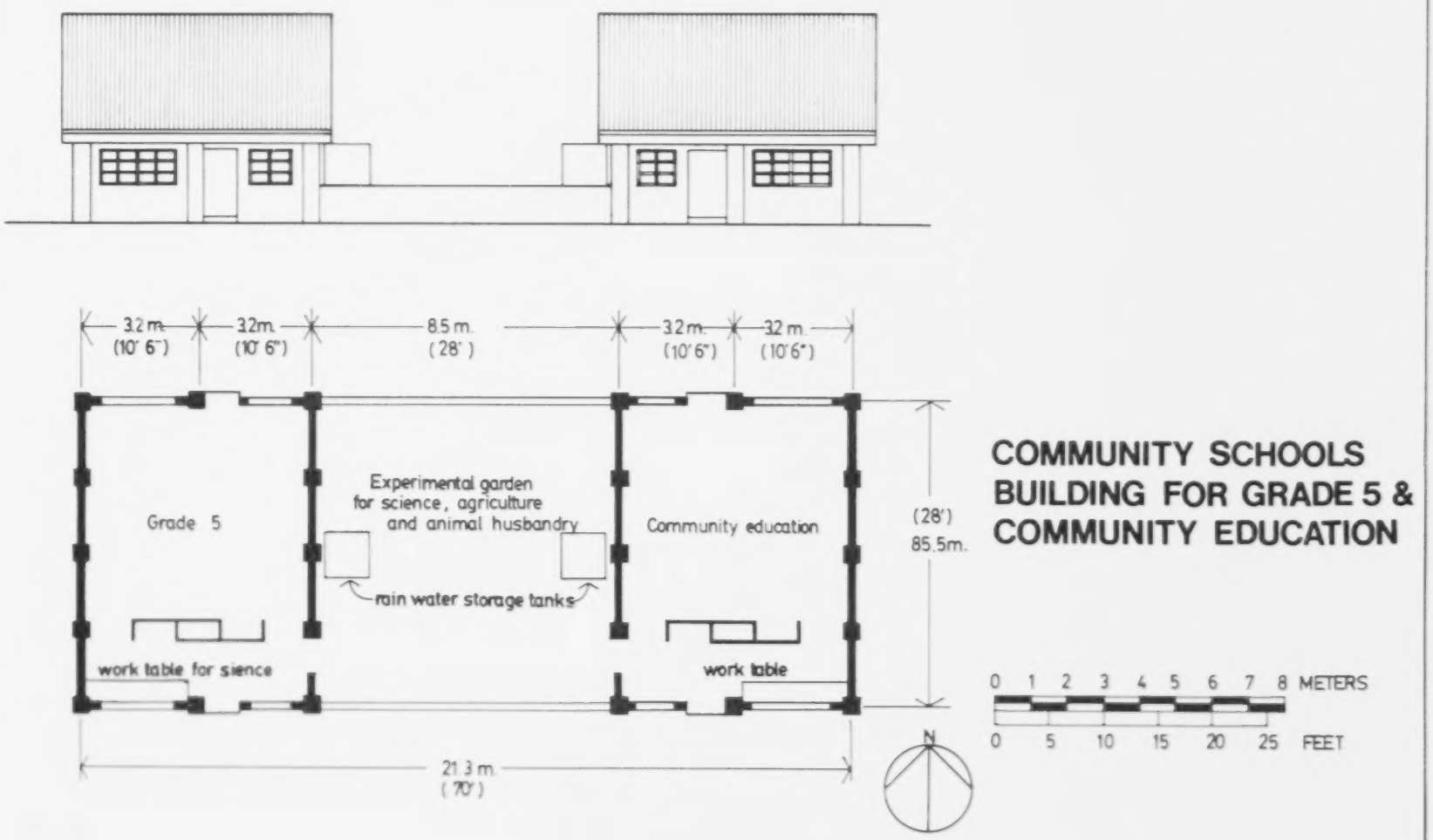


Figure 8. Community schools - administrative building


3.2 m. (10' 6")
3.2m. (10' 6")
8.5 m. (28')
3.2 m. (10'6")
3.2 m. (10'6")
Grade 5
Experimental garden for science, agriculture and animal husbandry
Community education
rain water storage tanks
work table for sience
work table
(28') 85.5m.
21.3 m. (70')
N
COMMUNITY SCHOOLS BUILDING FOR GRADE 5 & COMMUNITY EDUCATION
0 1 2 3 4 5 6 7 8 METERS
0 5 10 15 20 25 FEET

15

Figure 9. Community schools building for Grade V and community education

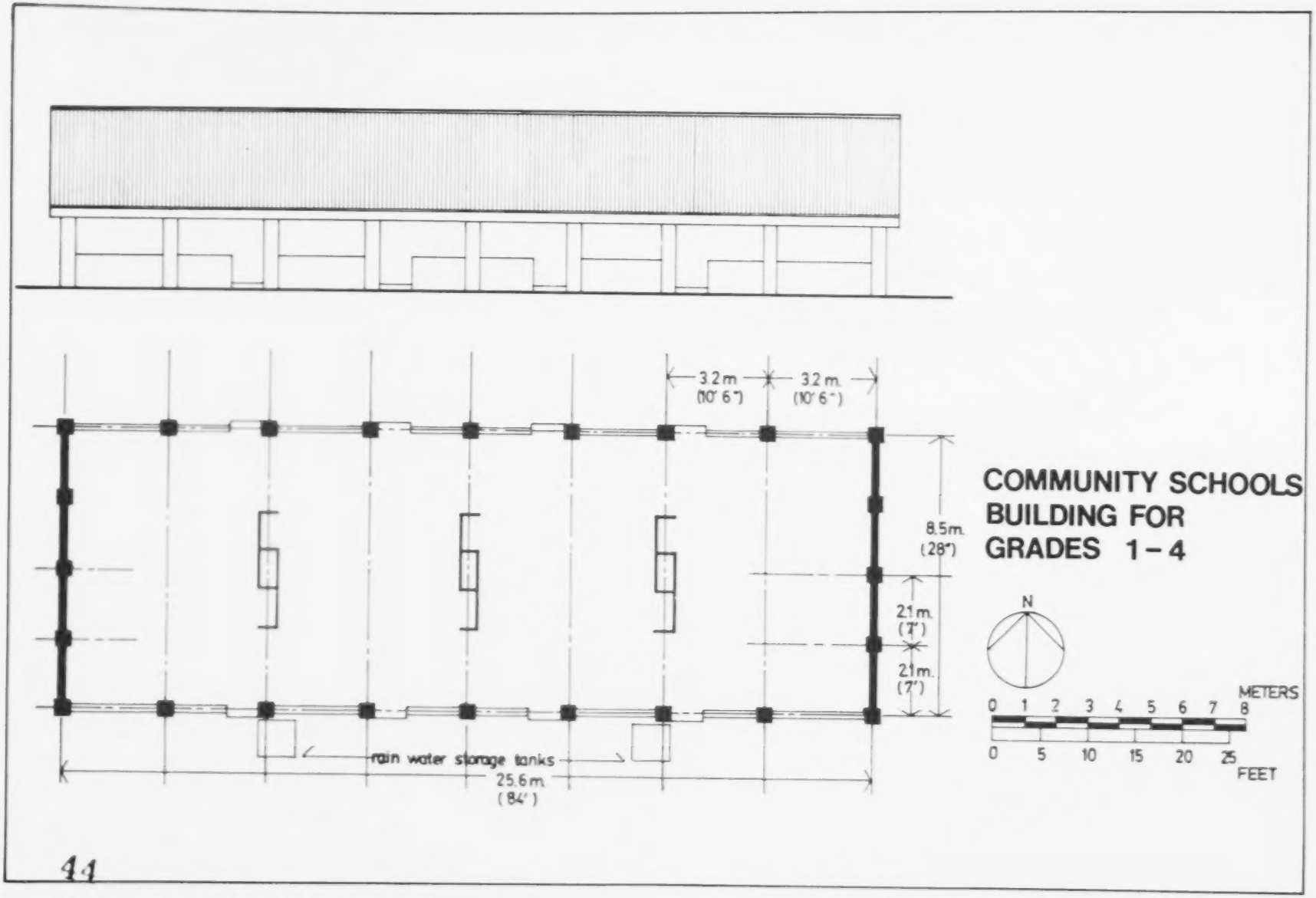


Figure 10. Community schools building for Grades I-IV

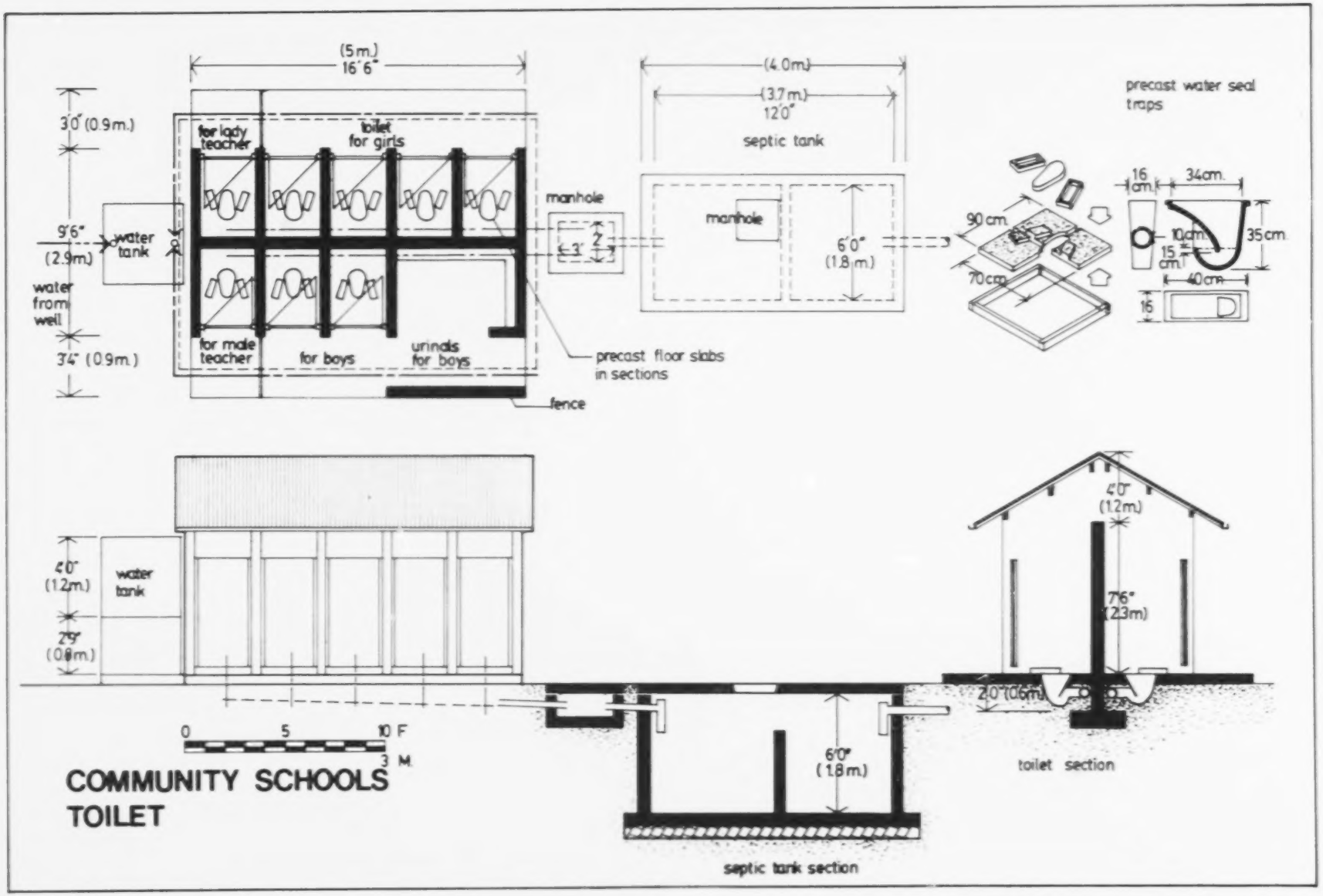


Figure 11. Community schools – toilet

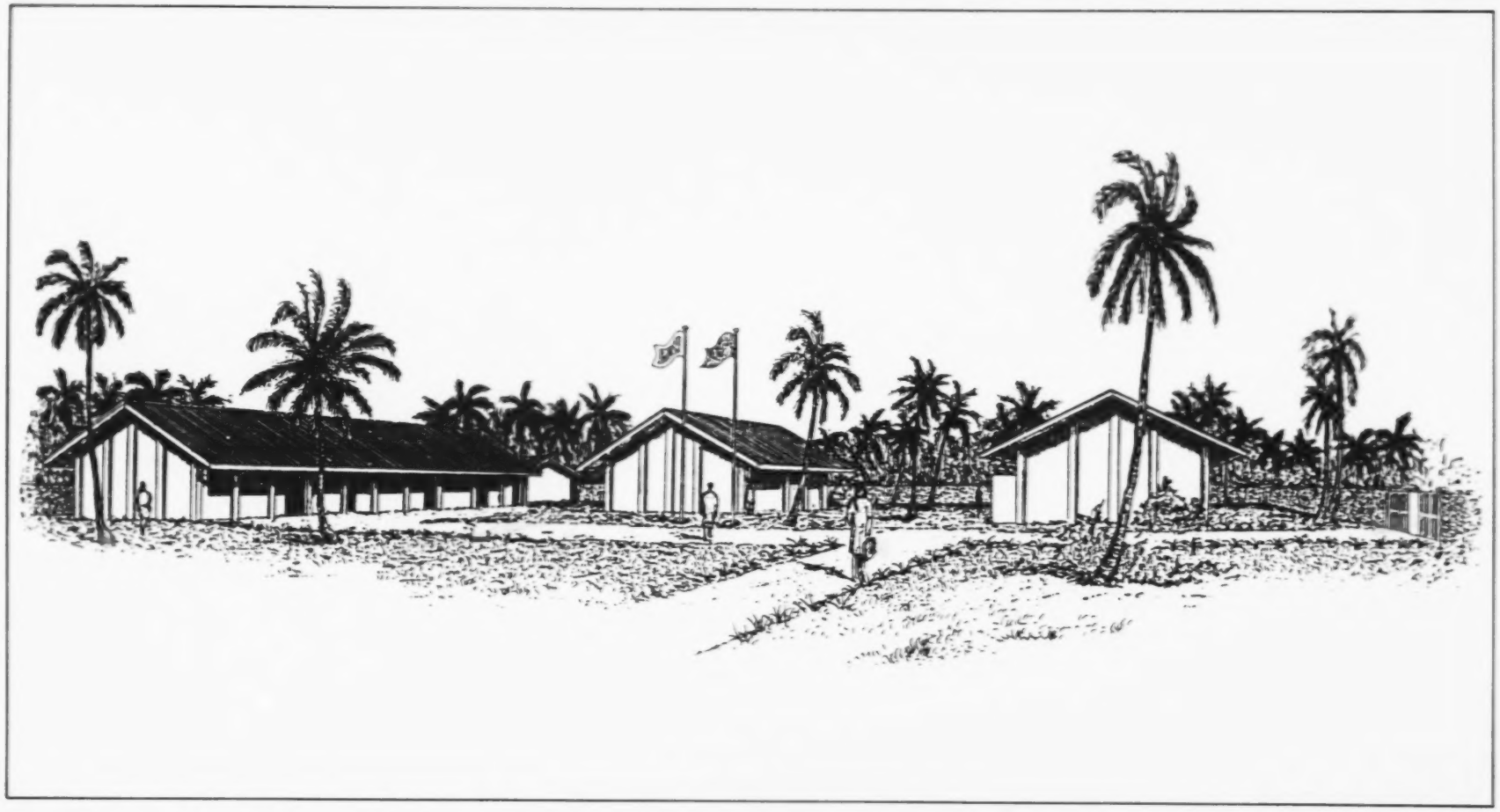


Figure 12. Community schools — a perspective view

The provision of furniture to the community schools was complicated by the number of factors that had to be taken into consideration. Since the community schools were serving primary age children, furniture had to be of several heights to accommodate children of different ages. The teachers and community, on the other hand, required adult size furniture. Also, the variety of functions foreseen for the community schools required that a multitude of various furniture arrangements be possible and easily effected. Finally, the high humidity in the atolls virtually dictated that the furniture be made of wood. Being a nation of fishermen, the Maldives had skilled carpenters who built wooden boats. This skill could easily be applied to the fabrication of wooden furniture.

Measurements of the standing heights of 740 boys and 822 girls from Male' and the atolls were taken. The results are given in Table 7. From these data suitable dimensions for furniture were derived by applying the ratios suggested by Unesco and given in Figure 13. Three optimum sizes of desks and chairs were determined and labled Types A, B and D as shown below.

	Age of users	Mean height of users	Height of desk	Height of chair
Type A	6-7 years	1.08 m	44 cm	27 cm
Type B	8-10 years	1.20 m	49 cm	30 cm
Type D	16+ years	1.58 m	64 cm	39 cm

CHAPTER IV
FURNITURE PLAN

The furniture designs followed the principles laid down by the Asian Regional Institute for School Building Research, and according to the needs a furniture supply list was made. Figure 14 illustrates the types and quantities of furniture supplied to each community school. The wood was imported through UNICEF and the furniture was made in Male under contract. The finished pieces were then transported to the islands by boat.

In a country where there had never been any specific model of school furniture, there is now an established standard of furniture for schools. These designs are now used in the Japanese-aided schools and in the government schools in Male'.

Figure 13. The critical dimensions and their ratios of the standing heights

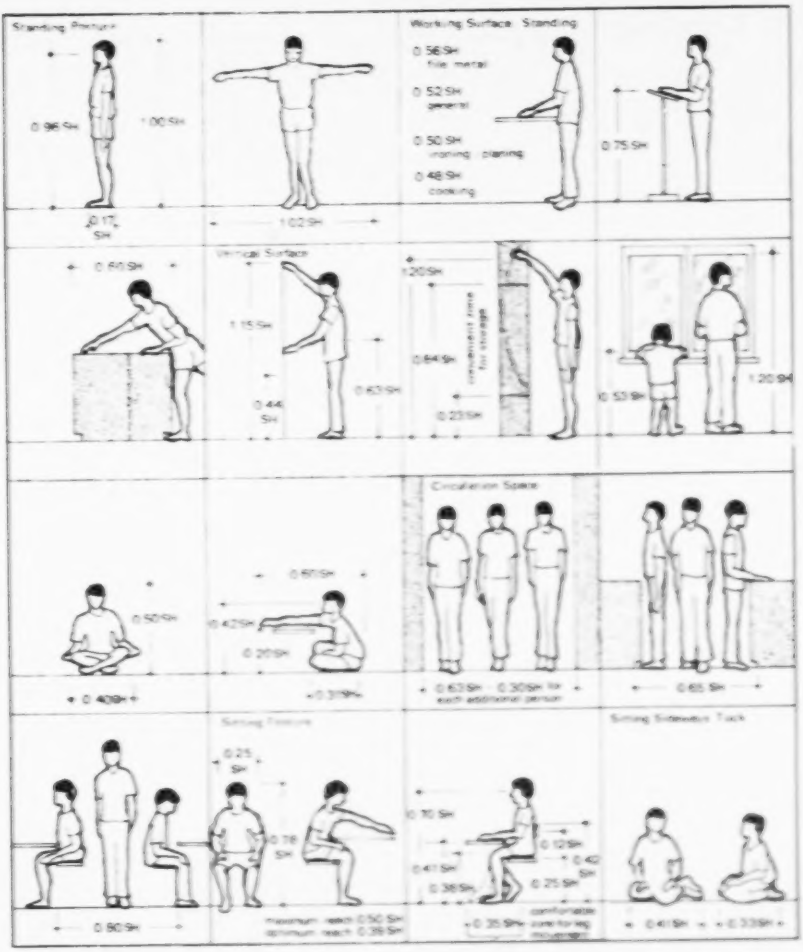


Table 7. Mean standing height and standard deviation for boys and girls per age group separated for Male' and other atolls

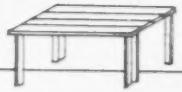
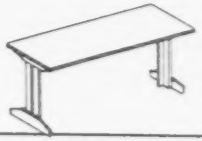
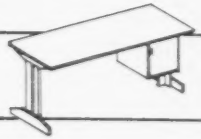
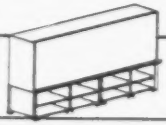
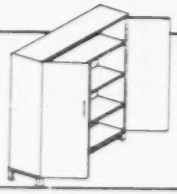
AGE (years)	BOYS				GIRLS			
	Male'		Other atolls		Male'		Other atolls	
	S.H.	No.	S.H.	No.	S.H.	No.	S.H.	No.
2	-	-	94	3*	-	-	-	-
3	-	-	94	3*	-	-	93	4*
4	-	-	108	5*	-	-	105	7*
5	-	-	103	9	-	-	101	17
6	-	-	105	16	110	82	106	15
7	120	69	111	27	116	70	109	22
8	126	67	119	27	123	95	116	29
9	130	63	122	27	128	76	118	26
10	137	83	124	26	132	47	123	29
11	138	52	125	6*	139	58	127	20
12	147	78	132	19	145	58	131	14
13	157	60	133	9	151	36	132	11
14	159	36	134	4*	147	51	138	6*
15	160	29	140	2*	150	25	147	2*
16	163	18	-	-	154	22	-	-
	Total	555	Total	183	Total	620	Total	202

* Statistically unreliable, due to limited sample size of this particular age group.

All measurements in centimetres.

Abbreviation: S.H. = Standing Height

Figure 14. Kind and number of pieces of furniture

	Use	Type	Scale (W x H x D) cm	No. of pieces
Chair (single)	6-7 years		30 x 27 x 30.5	80
	8-10 years		31 x 30 x 32	120
	16 years up		37 x 39 x 36	20
Desk (double)	6-7 years		100 x 44 x 40	40
	8-10 years		110 x 49 x 45	60
	16 years up		140 x 64 x 45	10
Chair (single)	For teacher		50 x 45 x 45	12
Desk (single)	For teacher		135 x 70 x 75	12
Blackboard with cupboard	For classroom		360 x 170 x 60	3
Cupboard	For classroom		180 x 150 x 35	2
	For teachers room		180 x 150 x 35	3
Blackboard	For classroom		360 x 120	2
	For teachers room		120 x 90	1

Each community school, once completed under the Ministry of Education, is a school to be used by the community. Seminars, meetings, parties, and film shows are held in the large hall with the room dividers put away. In times of emergency, such as a dysentery outbreak or other crisis, the hall could easily accommodate as many as 50 beds. The water tanks in the school compound, where rainwater draining off the roof of the school is collected, are open to the community for consumption. Older children are given evening classes, and basic education classes for adults are also held in the school. Apart from this, the ample sports grounds offer the youth of the island an opportunity for recreation. Volleyball and badminton are frequently played in the late afternoons.

The community schools are also being used as laboratory schools for teacher trainees from Male'. Although the facilities in Male' provide basic teacher training, Male' schools do not offer a realistic teaching practice environment for teachers expected to work in the island schools. Every year for more than three weeks, 20 or more trainees visit a community school.

Refresher courses for trained teachers have also been held in these community schools. The school halls have also been used on various occasions as the venue for important government seminars. They have even served as centres for a mobile team that has carried out eye examinations or operations for some 5,000 persons.

In the atolls where there are few spacious buildings on the islands, a large structure such as the community school provides is naturally utilized as a community meeting place.

CHAPTER V
THE COMMUNITY SCHOOLS IN USE

These community schools can be said to have succeeded well in several of their functions. Although each school does not offer primary education to children of the whole atoll, it does function as a focal point of each atoll. They are not mere primary schools. They are much more than that. In the truest sense of the term these are community schools.

Figure 15. The rainwater tank used as a communal water source for drinking purposes

Figure 16. Water well in a community school compound

Figure 17. Outdoor activity in the school compound

Figure 18. Community participation in the building of community schools.

Figure 19. Community participation in the building of community schools.

Figure 20. The headmaster's/headmistress' house in a community school compound

Figure 21. Community participation in keeping the school clean

CHAPTER VI
THE STRUCTURE OF THE GOVERNMENT WITH RELATION TO SCHOOL CONSTRUCTION AND SCHEME OF WORK

In order to plan and implement the project for the upgrading of schools and for the construction of new model primary schools, an Educational Project Office was established under the Ministry of Education. Initially it was in the project section of the Ministry proper. However with the large volume of work under way, it was necessary to establish a separate institution to cope with the expansion of activities. It was thus renamed the Education Development Centre (EDC) on the 1st. of January, 1979. (See Figure 22 for the structure of the Ministry and the location of the EDC.) The functions of this centre were to

1. Upgrade existing traditional schools,
2. Construct community schools and other island schools sponsored by the Government,
3. Develop curriculum materials for the island schools,
4. Train teachers for both island and Male' schools,
5. Develop a community education programme and coordinate such programmes in the country,
6. Develop a non-formal education programme through radio broadcasting,
7. Develop radio programme to supplement class-room teaching on the islands, and
8. Co-ordinate and direct the total project under the guidance of the Ministry of Education.

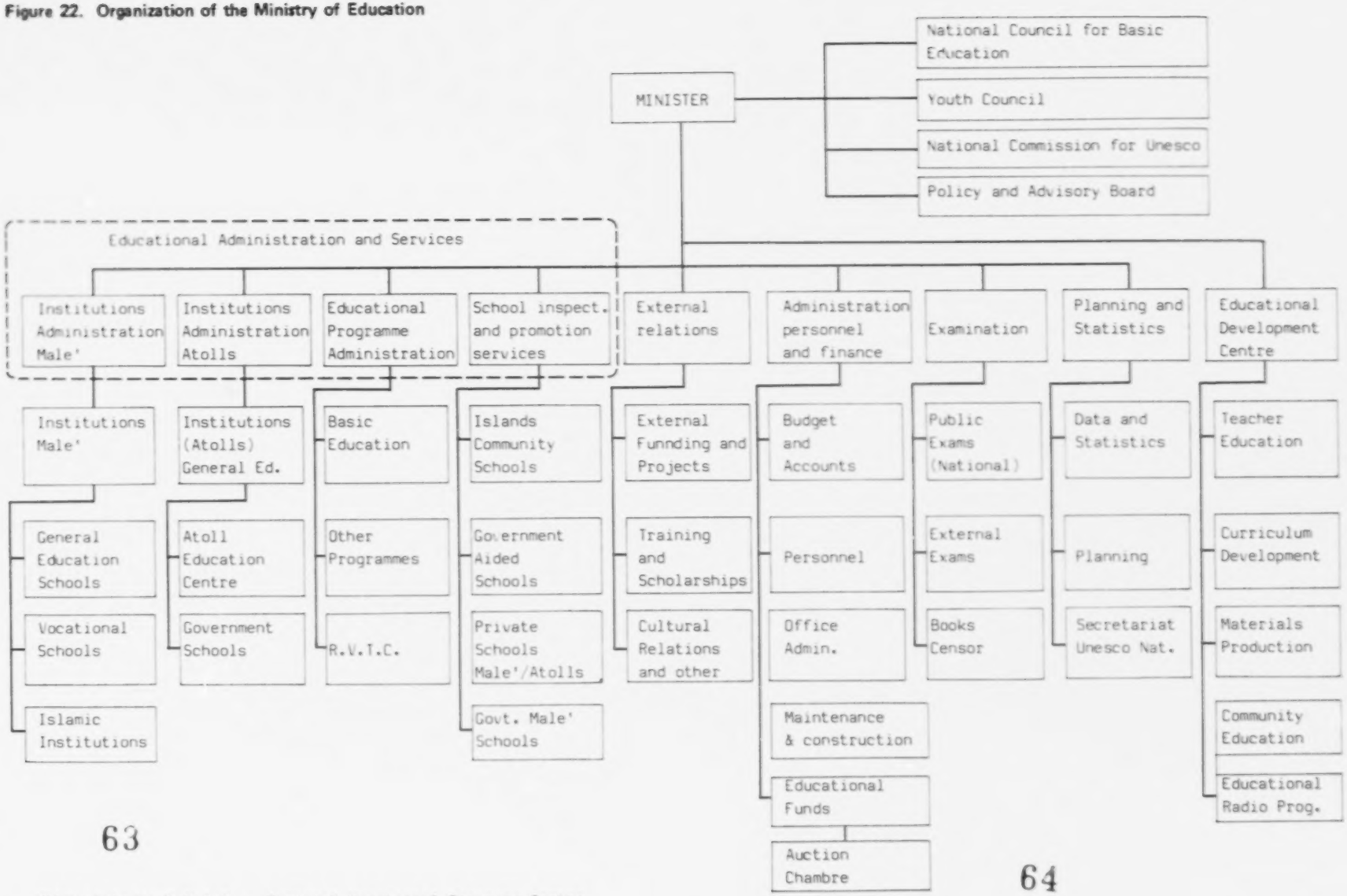
The EDC is headed by a director assisted by the Unesco project team leader, who is recruited by Unesco. The EDC is expected to implement the educational development package. The Director of the Educational Development Centre, who is responsible for the smooth implementation of the project, is directly answerable to the Minister of Education. Figure 23 gives the location of the school construction unit within the EDC.

Although the EDC is the project core, much of the work has to be done in close co-operation with the Ministry of Provincial Affairs. The Ministry of Provincial Affairs is responsible entirely to the administration of the atolls at the central level. Under the Ministry of Provincial Affairs, the North Regional Office and South Regional Office, both based in Male', clear most of the matters in the respective region.

The administrative units in the atolls have remained much the same as in the 1940s and earlier. However with the new Government and creation of development projects, the following bodies have been established (see also Figures 24 and 25).

1. The Atolls Development Advisory Board. On this Board sit representatives of various government agencies. The Board acts as a co-ordinating body for policy planning and development projects undertaken in the atolls by different central government bodies. The chairman of this body is the Minister of Provincial Affairs, who advises His Excellency the President on these matters.

Figure 22. Organization of the Ministry of Education



Abbreviation: R.V.T.C. = Regional Vocational Training Centre

Figure 23. Organization of the Educational Development Centre, Male'

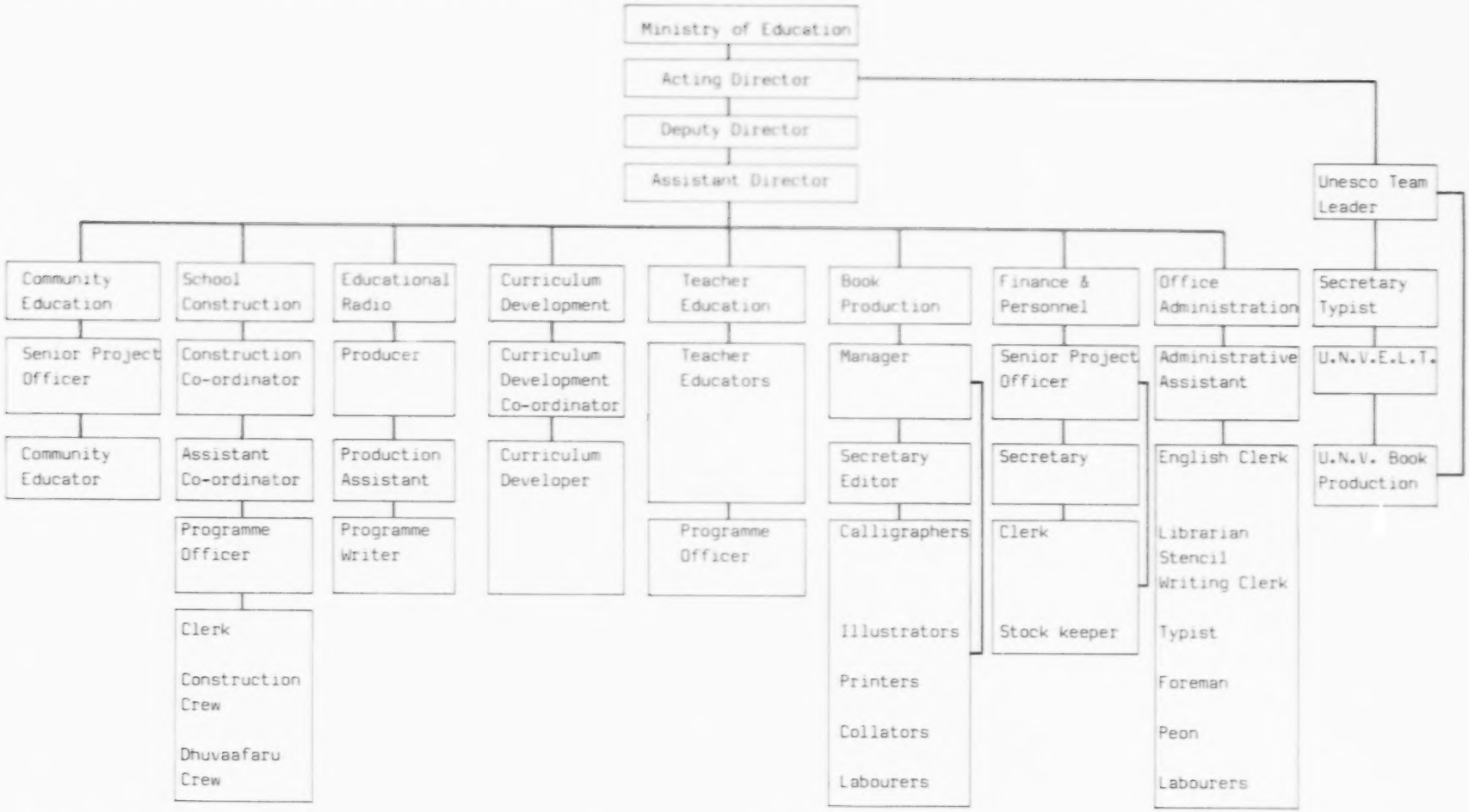
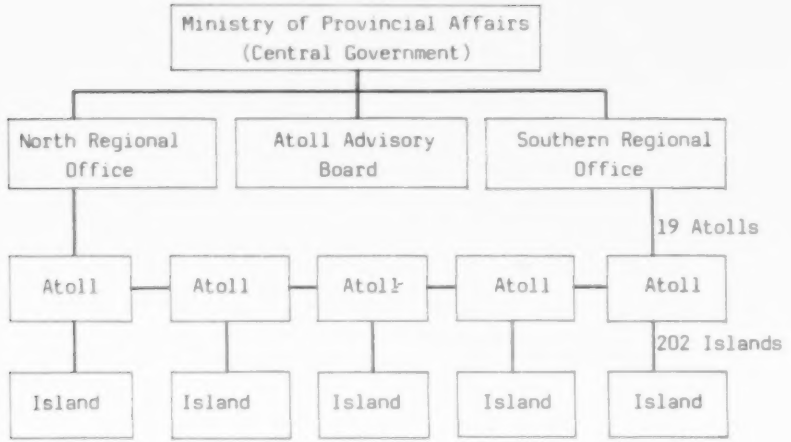


Figure 24. Administration of the atolls

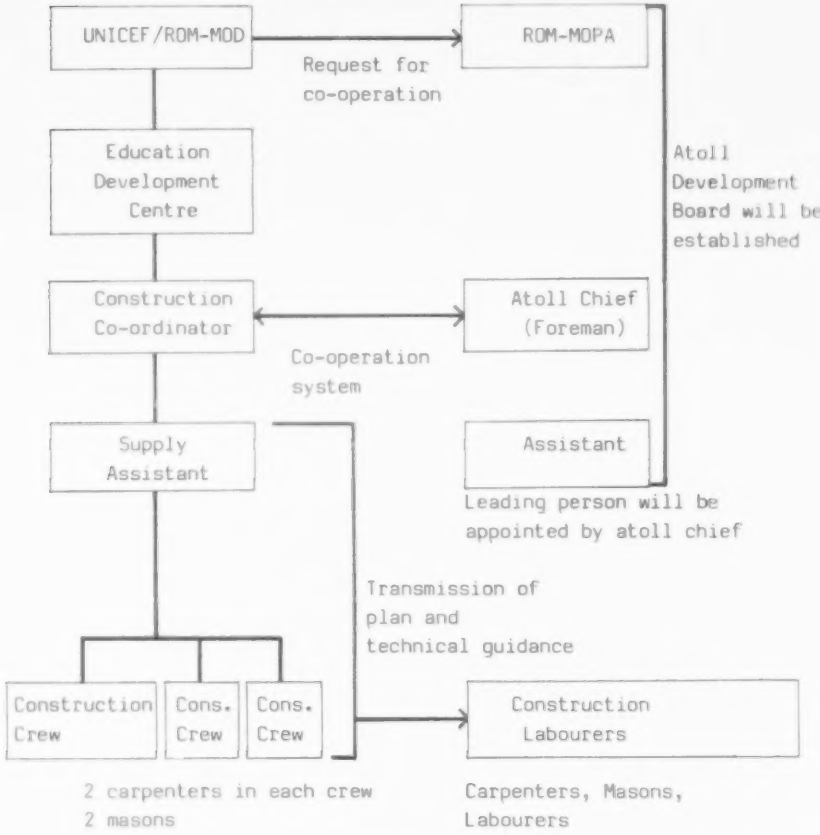


2. Atoll Development Committees. These have been appointed at atoll level at the initiative of the Minister of Provincial Affairs and consist of leading citizens of each atoll. Atoll Development Committees meet to identify ways and means of assisting government projects. They also plan development activities for the atolls.

3. Island Development Committees. These, although they have been established on every island, are different from the Atoll Development Committees in that rather than planning, the members are usually involved in carrying out various projects. They are appointed by the katheeb and the construction coordinator.

The construction sites are chosen by the Ministry of Education in consultation with the Atolls Development Advisory Board and the National Planning Agency. Population, size of island, harbour facilities and the strength of community support are among the criteria for selection.

Figure 25. Organization chart of community school construction



Although the Atoll Development Advisory Board has a direct bearing on the development of education in the atolls, it as well as the Atoll Development Committees has played but a small role in the implementation of the community schools project. However, for the construction of the schools, the Island Development Committees have contributed substantially by organizing the local labour and the collecting of sand, lime and coral.

The EDC and the Ministry of Provincial Affairs work in close co-operation on various stages of the project.

The atoll chiefs are directly responsible for the efficient construction of the schools and guarantee to the EDC that the schools will be completed before the agreed deadline. Their work is primarily moral and administrative support.

The actual construction is conducted by a team from the EDC Community School Construction Section.

The EDC construction team is made up of six persons: a construction co-ordinator, an assistant construction co-ordinator, a supply assistant in charge of ordering, transportation and procurement of supplies from Male', two carpenters, and two stone masons.

The duties of the construction coordinator are as follows:

1. Making various arrangement with the atoll chief who will be responsible for the construction at the local level.

2. Ordering and making arrangements for the importation of materials.

3. Arranging domestic transport of materials.

4. Managing and monitoring the overall rate of progress of the construction.

5. Checking and controlling the quality of the construction.

Working under the guidance of this team and the supervision of the construction assistant (usually the island chief) assigned by the atoll chief, the actual construction is carried out by the local construction crew carpenters, masons and other labourers.

UNICEF assisted in the procurement of supplies from abroad, generally following the steps listed below.

Request prepared by construction coordinator.

Direction for purchase given by the Director, EDC.

Supplies approved by UNICEF, Male', and sent to UNICEF, Colombo.

Procurement authorization received and procurement effected either by UNIPAC or by the UNICEF Regional Office, Bangkok, as directed by UNICEF, New York.

Supplies procured after competitive bidding and shipped to Male'.

On arrival of supplies in Male', repack for transshipment to project sites in the atolls.

Transportation and import of the materials and the salary of the construction team were paid by UNICEF, but the costs of all local material such as coral, lime, and sand, and the salary of the construction crew were met by the government.

The materials are imported to Male' duty free and are transported to the construction site either by local transport or by the official transport boat belonging to the EDC. This is one of the most difficult parts of the whole operation.

It usually takes nine months for the construction to be completed, if materials are available. However delays have occurred if Ramadan (the fasting month) or the monsoons fall during the period of construction.

Officials of the Ministry of Provincial Affairs and the atoll chief meet frequently with the construction coordinator to smooth out problems and discuss progress.

ANNEX 1.

AN EDUCATIONAL PROFILE OF ATOLLS

Name of Atoll	No. of Islands in Atoll	Atoll Pop. 1985	Literacy Rate 1977	Enrol. in 1985	Enrol. ratio 5-19 years in %	Estimated Primary school age pop. 6-10 years (1995)	Name of Island with model school (REC/RPS)
Haa Alif	16	9,891	54.14	2,611	64	2,203	Dhidhdhoo/Huvarafushi
Haa Dhaal	17	10,848	42.10	2,541	52	2,534	Kulhudhuffushi/Vaikaradhoo
Shaviyani	15	7,529	60.71	2,032	76	1,635	Komandoo/Kaditheemu
Noonu	14	6,874	64.72	1,843	73	1,606	Velidhoo/Manadhoo
Raa	16	9,516	60.19	2,254	65	2,024	Meedhoo/Kadholhudhoo
Baa	13	6,945	66.22	1,589	54	1,470	Eydhafushi/Dharavandhoo
Lhaviyani	4	6,402	66.65	1,539	43	1,441	Hinnavaru/Kurendhoo
Kaafu	9	8,574	69.01	1,183	46	1,064	Thulusdhoo/Kaashidhoo
Alif	18	7,695	67.58	2,708	59	1,585	Mahibadhoo/Feridhoo
Vaavu	5	1,423	81.73	317	69	270	Felidhoo/Fulidhoo
Meemu	9	3,493	70.63	905	46	794	Muli/Kolhufushi*
Faafu	8	2,148	77.94	413	58	510	Feeali/Nilandhoo
Dhaal	8	3,576	42.77	864	53	765	Kudahuvadhoo/Meedhoo*
Thaal	13	6,942	69.99	2,158	67	1,589	Thimarafushi/Guraidhoo
Laamu	12	7,158	57.41	1,625	55	1,560	Fonadhoo/Maibaidhoo
Gaaf Alif	10	6,081	77.56	1,123	46	1,276	Vilingili/Thinadhoo
Gaaf Dhaal	10	8,870	83.77	2,310	56	1,980	Thinadhoo/Gadhdhoo
Gnaviyani	1	6,189	79.14	1,073	41	1,079	Mulah
Seenu	6	14,965	79.35	3,740	64	3,601	Hithadhoo/Hulhumeedhoo
Total	204	135,119	70.72	32,828	55	28,986	* Proposed Island

AEC: Atoll Education Centre APS: Atoll Primary School (Atoll Madhrasaa)

ANNEX 2.

BUILDING COSTS

A. UNICEF aided schools (source EDC)

Elements	1977 US$	1977 MRf.	1980 US$	1980 MRf.
UNICEF materials	16,000	120,000	19,775	148,000
UNICEF wood	12,335	92,500	19,490	146,000
UNICEF freight to Male'	4,200	32,000	5,850	44,100
Government contribution		27,000		40,000
Island contribution				30,000
UNICEF boat costs			500	3,750
Government boat costs				17,500
UNICEF project unit cost				8,550
Total cost of school in 1980				437,900 (US $58,000)
Cost per sq.ft. of school in 1980 (Total cost/5,500 sq.ft.)			=	MRf. 80

B. Bilaterally aided schools (source MITSUI Construction Co.)

Total cost per school	US $260,000	=	MRf. 1,950,000
Cost per sq.ft. (total cost/5,500 sq.ft.)		=	MRf. 355

C. General costs in Male' (source Office of Physical Planning & Design)

For multiple storey, reinforced concrete structure : per sq.ft.	=	MRf. 200

ANNEX 3.

LIST OF ONGOING AND PROPOSED PROJECTS IN EDUCATION

Project Title	Cost in US$	Source of Finance	Priority
1. Aminiya School Extension	829,800	Government	on-going
2. Majeediyya School Extension	1,877,874	Government	on-going
3. Construction of Atoll Primary School	7,758,436	Japan	on-going
4. National Skill Development	409,910	UNDP	on-going
5. Functional Literacy Programme	127,226	Government/UNESCO	on-going
6. Rural Youth Vocation Training	381,000	UNDP (100% CS AGFUND)	on-going
7. Upgrading of island primary schools	1,550,000	UNICEF/Int. NGOs	
8. Teachers Training Institute	450,000	UNESCO (FRG FIT)	on-going
9. Development of Education	497,000	UNDP	completed
10. Construction of one primary school in Male'	1,092,268	Government	completed
11. Development of a textbook production unit	1,796,000		1985-87
12. Establishment of an Institute for Islamic studies in Male'	831,600		1985-87
13. Iskandhar School extension	780,683		1985-87
14. Construction of two primary schools in Male'	2,184,536	Govt/Bilateral aid	1985-90
15. Construction of an Education Development Centre	922,000	UNESCO (FIT from Saudi Arabia/AGFUND)	1985-87
16. Restructuring Vocational Training Centre Phase III	500,000		1985-87
17. Development of Educational Opportunities		UNICEF	on-going

UNESCO